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EU'S ANTITRUST POLICY AGAINST U.S. BASED BIG TECH

Protecting European consumers from Google Search and Amazon e-books

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ABSTRACT

The focus of this research paper is to address the state of competition in the European high-tech industry from the perspective of its main beneficiaries, the consumers. This is done by assessing the antitrust policy of the European Commission against U.S. based multinationals, the “big tech”. By choosing Google and Amazon as the representative firms, I draw upon recent antitrust cases and secondary literature related to the Android Operating system and Amazon e-books to examine whether the European Commission’s antitrust authorities have acted in a way that improves consumer welfare. The analysis of the arguments for and against government intervention is executed through competing antitrust doctrines: Chicago and Ordoliberal approach. I find that in both cases, the business practices under scrutiny have pro-competitive rationale that can bring benefits to consumers. I do not find direct evidence that the EU’s antitrust policy would be used to protect European companies from foreign competition.

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1. INTRODUCTION

Most of us spent time on Facebook, stay connected through Apple, shop on Amazon, watch shows on Netflix and Google our information. So much so that one could argue the U.S. tech firms have become too big to fail – there is not enough competition.

The 2014-2019 European Commission (EC) has been very active in its efforts to introduce new legislation on the tech industry, prohibit M&As, and mandate tech companies to pay large fines for anticompetitive behaviour. Most of the largest tech companies, Facebook, Apple, Amazon, Netflix and Google (the FAANG Stocks), come from the United States. Because FAANG companies dominate the global markets, the EU's antitrust policy affects especially the big tech carrying out business in Europe.

A trend becomes apparent when you follow the news. Google was fined $5.0 billion for Android antitrust violations. Apple had to pay a fine of $15.3 billion because of illegal state aid that it received over the years from Ireland through preferential tax treatments. Recently, the EC has launched new investigations on Amazon's sales data collection, and the Irish Data Protection Commissioner is investigating Facebook over General Data Protection Rules (GDPR) compliance. Netflix alongside Amazon are soon mandated by law to increase their audio-visual content originating from Europe to cover up to 30% of their streaming catalogue.

The first explanation for the antitrust policy is that the phenomenal success of FAANG Stocks have created imperfect competition in Europe where the U.S. big tech limits competition by buying out competitors or forcing them out of business. Prices become higher for consumers, there is less innovation, and consumers' freedom to choose is taken away. The EC acts in the interest of the markets by protecting consumers' private data, diversifying the supply of streaming services and by penalizing tech companies for rigging the game. Government intervention has led to a more efficient market place.

The second explanation is that the EU is trying to create a competitive advantage for European tech through these antitrust policies. While the actions are making business in Europe more expensive for the FAANG companies, the European competitors can seize the opportunity. On top of this, the EU collects a pile of cash to spend through

the antitrust fines. The policy actions might be protectionist measures that can possibly harm the European consumers enjoying tech services. We would be better off by allowing markets to self-regulate through the competitive process.

Relevant research objectives for this thesis were to: 1) describe trends in market power and competition in FAANG companies' relevant markets, 2) assess government intervention as a tool to improve market efficiency, 3) examine and explore the advantages and disadvantages resulting from the EU's recent antitrust policy using the previous research. The main research question of this thesis is whether the EU's antitrust policy truly benefits European consumers?

Chapter 2 will review literature related to antitrust and competition in the high-tech industry, Chapter 3 presents the methodology of the research paper, while Chapter 4 presents the competing economic approaches to antitrust alongside with two antitrust cases related to Google's and Amazon's business practices in the European Economic area, and lastly, Chapter 5 will summarise the findings of the research paper and provide ideas for future research.

2. LITERATURE REVIEW

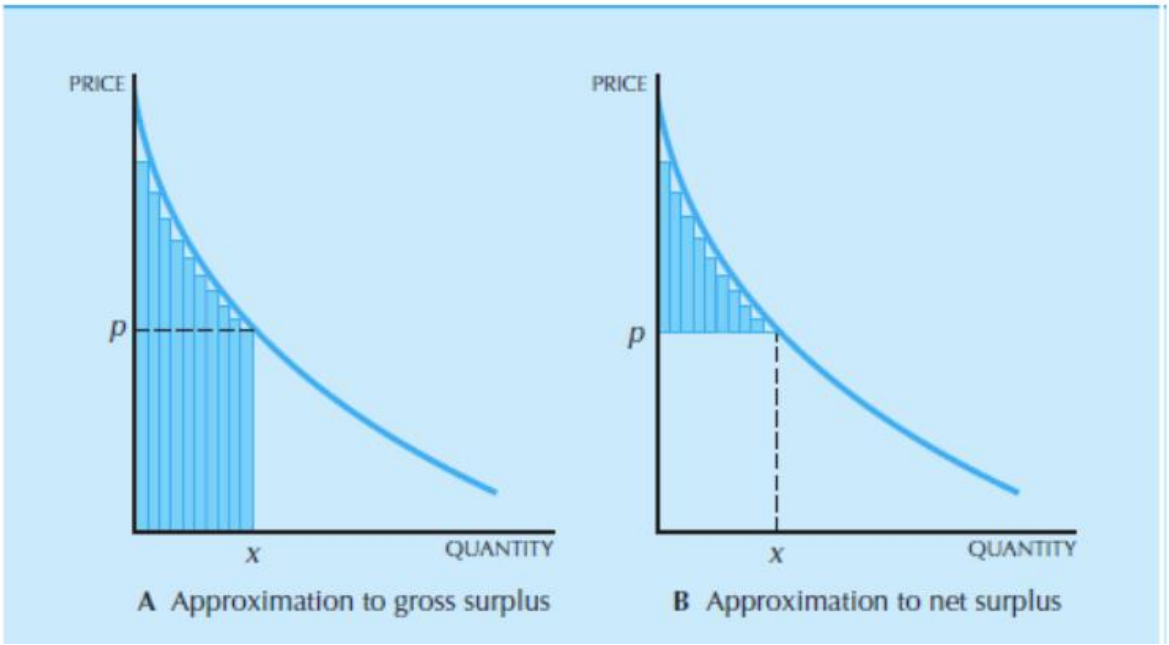
2.1. Introduction to antitrust: the definition of consumer welfare

Commonality among the U.S "big tech" firms is the high-profile antitrust cases imposed by the executive authority of the European Union, the European Commission. Google has been fined €4.43 billion & another €2.42 billion for abusing its dominant position in smartphone operating systems and comparative search in shopping services. Amazon was forced by the EC to change its business operations in e-book sales. Intel was fined €1.06 billion for abuse in microchip market.

The central question is whether this proactive antitrust policy adopted by the Commission improves consumer welfare, which is often stated as the main goal of competition authorities. By consumer welfare, we mean whether the competitive restraints affect quantity supplied to the market, the market price and the quality of the service or product (Pera & Auricchio, 2005: 155). Consumer welfare can be measured with consumer surplus which is the area under the Marshal's demand curve and above the market/equilibrium price. Table 1 visually depicts the definition of consumer

surplus in panel B. Consumer surplus is defined as the extra benefit (utility) that a consumer receives by being able to make transactions at the prevailing market price. The changes in consumer surplus determine the effects on consumer welfare.

Table 1: Consumer Surplus for a continuous demand



The consumer welfare standard means that the objective of antitrust laws should be to maximise economic welfare by using economic theory to identify business practices that are aligned with that goal (Posner, 2001). Melamed and Petit (2019) similarly define consumer welfare standard broadly as antitrust laws that “promote economic welfare and protect economic agents from the predictable harms that are caused by improperly obtained market power”.

Notice, that this definition might exclude other policy goals that would be pursued with antitrust laws, such as improving labour conditions & wages, privacy of consumer data or protection of national industries from unfair competition. The definition of economic welfare is vague, since it could mean simply maximising consumer surplus, but it also could mean that we aim to maximise the gross surplus in Table 1 panel A, which also includes the producer surplus, while taking a neutral stance on how the surplus is distributed between consumers and producers. Table 2 shows the producer surplus as the PS area under above the supply curve and under the market price.

Table 2: Socially optimum output for a perfectly competitive market (Endres and Radke, 2012: 89)

6.5 Basic Issues in Welfare Economics 83

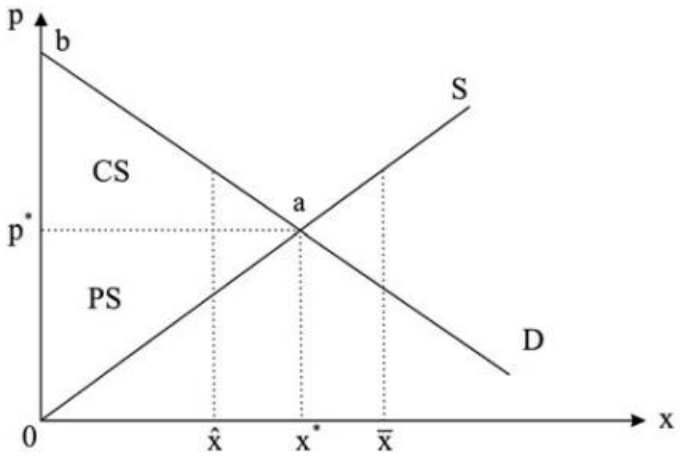


Fig. 6.11 Socially optimal and perfectly competitive level of production

2.2. The transatlantic comparison of antitrust practices: the European Union versus United States

Multinational enterprises engaging in cross-border trade between markets in the EU and U.S. still face significant risks related to harsh business practices in the U.S. and cost of regulatory compliance in the EU. The main differences of antitrust policies lie in what are the concerns that antitrust frameworks aim to resolve; how much flexibility & legal protection companies enjoy and what kind of sanctions antitrust authorities pursue.

2.2.1. EU competition law's structure and goals

In general, the EU competition law consists on a somewhat complex legal framework: Article 101 (1) & 102 TFEU that outline the general rules on competition, Article 101 (3) TFEU which provides criteria for exemptions from the general rules and a more precise guidelines, the Block Exemption Regulation Applicable to Vertical Agreements (VBER), that identify practices that are either blacklisted or fall within the safe harbour

category (Accardo, 2013). The EU competition law has jurisdiction on antitrust issues regardless of the nationality or territorial location of the anti-competitive actions or the place of agreement (Accardo, 2013). This means that the European Commission can pursue antitrust action “over agreements or practices that are either implemented or produce effect inside the EU, even if one or more of the parties are located outside the EU” (Accardo 2013, 250). The EU allows national competition authorities and courts to apply articles 101 and 102 so that the Commission can dedicate more of its effort on priority antitrust cases (Levy, Frisch and Waksman 2015, 449).

The competition law in the European Union serves the goal of creating the single market of goods and services among the European nations by highlighting the importance of intra-brand competition, parallel trade and facilitating new forms of distribution of goods (Accardo, 2013). Intra-brand competition refers to the competition between suppliers and distributors to provide the same branded good to the market. For example, Nike shoes are sold not only in its own outlets, but also distributed through low-end shops and e-stores. Parallel trade within EU means when a manufacturer sells stock to a distributor that resells it across the border to another country. It seems so that the EC’s antitrust policy regards consumer protection and fostering competition within the internal market of the EU as proxies for attaining consumer welfare. The EU competition law therefore constrains, and in some instances prohibit, suppliers to impose vertical restraints on distributors with the concern that consumers are harmed if they are not able to benefit from the full potential of distribution channels (Accardo, 2013).

2.2.2. Definition of vertical restraints

There are many problems and conflicting interest that business managers have to deal with in supply-distribution channels. For example, a manufacturer could spend significant amount of money on advertisement and building a brand image, while their dealers would not only be able to free-ride on these investments, but also to use marketing material that contradicts the brand image. In practice, brand owners address these issues either by forming contracts with the dealers within the supply chain which often impose restrictions on business practices of the distributors or excluding unsuitable dealers completely from the supply chain. Historically, the vertical

restraints had a direct or indirect constraint on the development of parallel trade between the EU member states which lead the Commission to focus on challenging vertical restraints in the first place (Levy, Frisch and Waksman 2015, 446).

2.2.3. Competition law in the United States

The competition law in United States relies on the Sherman Antitrust Act (especially sections 1 and 2) enacted back in 1890 and interpretation of it by the U.S. courts. Due to different jurisprudence, legal theory, that is built around the case law instead of statutory law, U.S. competition law could be characterised as an easy read, but more uncertain in terms of outcomes. Similar to the EU competition law, the Sherman Act's jurisdiction applies widely to anti-competitive agreements which affect the trade within U.S. or with foreign countries (Accardo 2013). Comparing U.S. to the EU, there are no blacklisted restraints, no safe harbours, no specific guidelines for vertical restraints (Accardo 2013). U.S. manufactures do not have to worry about regulations on specific distribution channels, when in the EU there are different regulations for online versus offline and exclusive versus selective distribution channels (Accardo 2013). Accardo (2013) makes clear that the freedom to contract is the leading principle in antitrust law which makes the U.S. competition law more tolerant.

The US competition law has not been constructed with the additionally policy goal of establishing an integrated single market (Accardo, 2013). The section 1 of the Sherman Act actually allows for restrictive restraints on competitors, so long as they are not unreasonably restrictive regarding competition in the (Accardo, 2013). Instead of inter-brand competition, the U.S. antitrust focuses on the restraints placed on inter-brand competition (Accardo 2013). Inter-brand competition refers to competition between firms that have created labels or brands, for example, Apple and Samsung.

This ties in with the rule of reason principle, which means that a general inquiry must be made considering all of the relevant circumstances: in a well-defined market segment the anticompetitive effects of the restraint must outweigh the proven procompetitive benefits (Accardo, 2013). Under the generous rule of reason, plaintiffs in the U.S. must be able, for instance, to actually show that an agreement or conspiracy exists and that the accused company can significantly influence the price and competition or that the anti-competitive effects have had direct negative effects

on the competitors (Accardo 2013, 313). In the EU area, the roles are reversed: the plaintiffs do not have the responsibility to prove that the dominant company has harmed consumers or competitors. According to the ECJ ruling on the Michelin v Commission (1983), it is the dominant company that has a special responsibility to make sure that its business conduct does not distort competition in the common market.

2.2.4. Antitrust remedies across Atlantic

The antitrust remedies for anti-competitive business decisions differ between the Atlantic. In the U.S, directly punishing individuals who conspire with others to form cartels is seen as an effective way to build deterrence (Baker, 2009). The practice in the EU has been instead more administrative by pursuing large fines against the employing corporations whose employees commit antitrust violations (Baker, 2009). Baker (2009) describes that in the American politics and public psyche the conspiring individuals deserve to be treated like white-collar criminals, such as embezzlers or insider traders, since for example, price-fixing is thought as stealing from the consumers. Europeans tend to view monopolies more of a regulatory problem since the public sectors in EU member states have historically been active in creating monopolies for instance in industries like “energy, public transportation, broadcasting, telecommunications and medical treatment” (Baker 2009, 167). The commission has used its enforcement authority densely on these state-legacy monopolies, especially public utilities and ports (Baker 2009).

2.2.5. The U.S. backed Chicago School and EU favoured Ordoliberalism

The economic perspective have played a key role in how antitrust legislation has developed over the years across the Atlantic. The Chicago School of Economics has been instrumental in the U.S. approach (Baker 2009). According to Baker (2009), the American antitrust enforcers are more likely to assume that:

- the primary objective of antitrust should be allocative efficiencies of the society as a whole, rather than to safeguard economic interest of a single stakeholders groups;
- enterprises are profit maximisers and therefore would recognise that most predatory and leveraging activities hurt their consumer base and thus are irrational;
- the markets are self-correcting which implies that antitrust interventions that try to change market structures are most likely to create welfare losses and, at worst, will misallocate resources in the economy.

These assumptions have led the U.S. authorities adopt the idea that over-enforcement of Section 2 of the Sherman Act has a negative impact on innovation, taking risks and investments – a view that has been advocated especially by enforcers and judges that were appointed during the Reagan and Bush administrations (Baker, 2009). For example, Justice Scalia argued in the U.S. Supreme Court's *Trinko* decision in 2004, that charging monopoly prices for a short period as such is an important element of the free market economy that provides incentives for businesses to innovate and produce economic growth (Baker 2009, 168). Therefore, exploitation of a monopoly is legal under Section 2 (Baker, 2009).

In the European Union, Baker (2009) explains that post-Chicago or ordoliberalism is the main perspective for economics in antitrust. The European antitrust authorities would assume that:

- Game Theory testing shows that forestalling or minimising competitors' entry into the market is in the interest of a profit maximiser,
- Markets may not be self-correcting and thus having passive competition authorities can be inefficient,
- It is worthwhile to focus on anti-competitive conduct that distorts competition on merits in both the monopoly market and the dependent market.

The EU ends up protecting small-but-efficient competitors and sanctioning predatory conduct (Baker, 2009). The insights differ from the U.S. approach so that: 1) rivals and purchases of the dominant firm are not able that well to react to the dominant rival's exclusionary conduct, 2) the short-term benefits of the state intervention outweigh the

negative long-term effect and 3) that future entry of potential competitors is not an effective remedy to deter anticompetitive conduct. (Kovacic, 2008).

Table 2: Differences between the Atlantic on antitrust (Baker, 2009: 168)

Conduct	US: Illegal under §2	EU: Illegal under Art 82
Predatory attempt to acquire a monopoly	Yes	No
Acquisition of monopoly by exclusionary means	Yes	No (except perhaps by merger)
Exclusion of others from the monopoly market	Yes	Yes
Exclusion of others from other related markets (ie monopoly leveraging)	No (or rarely)	Yes
Refusal to deal, interconnect with rivals	No (or rarely)	Yes
Unfair treatment of customers in the monopoly market	No	Yes, sometimes

2.3. A replay of history: The International Business Machines Corporation (IBM) against the EEC Commission

It is not the first time that the European Commission has launched an antitrust investigation against a large multinational technology firm based in United States. Between 1973-1984, the Commission for the European Economic Community, the EEC Commission, (prior to the establishment of the European Union by the Maastricht treaty in 1992) accused IBM for an abuse of a dominant market position by memory bundling & software bundling & installation productivity options (EEC Commission 1984, 7). Bundling in this case means that the IBM's central processing units of System/370 were offered on sale to consumers only with the operating system and main-memory capacity included in the price but could not be purchased separately. Additionally, the EEC Commission (1984) pointed out that IBM was refusing to deliver

software installation services for consumers that had bought IBM operating systems for other than IBM central units.

2.3.1. The EEC Commissions demands and motives for the IBM case

The Commission demanded that IBM changed its business practices related to bundling & discrimination and that IBM committed to communicate information regarding interoperability of the IBM's mainframe computers and its networking architecture, i.e. the Systems Network Architecture (SNA) (Laer, 2018). This would allow IBM's competitors to develop substitutable software and hardware products to System/370 and to SNA products (Laer, 2018). In the period before the World Wide Web, IT-companies had to develop their own closed networking architecture that made communication possible between the computers.

One of the main motives of the EEC Commission to take antitrust action against IBM was the industrial policy aims for the European computer industry (Laer, 2018). The industrial policy was formulated during a period when 90% of computers installed in Europe were based on technology that had been invented in the United States (Laer, 2018). IBM's market share in Europe was 60% (Laer, 2018). The commission adopted a common EEC policy that aimed to support the European computer industry until would become competitive so that:

- Europeans would have a part to play in the economically vital and growing computer industry,
- the European consumer market for computers would not be dependent on a single company that was controlled from the outside,
- the Europeans could compete with IBM that had heavy U.S. government financing behind it (Laer, 2018).

In practice, the EEC Commission's strategy to achieve these aims was to encourage European medium sized computer companies (especially Unidata and the upcoming ICL-Nixdorf association) to merge into a large company that would affect the competition at the global level (Laer, 2018). The EEC Commission would then organise subsidies for research and development and coordinate public procurement efforts to support the new European champion's products (Laer, 2018). The main

architect of the IBM antitrust case was Altiero Spinelli, the Commissioner for Industrial, Technological and Scientific Affairs & member of the Italian Communist Party (PCI), who thought that antitrust action against IBM would complement the industrial policy, especially when the American Department of Justice in 1969 had launched its own antitrust investigation on IBM (Laer, 2018).

2.3.2. Antitrust made by rivals at a slow phase

It is worthwhile to notice that besides protectionist economic development policies, antitrust can also be driven by competing firms that simply want to reduce competition. There were eight American firms that filed a complaint against IBM in Europe in cooperation with the European Commission between 1977-1980 (Laer, 2018). All of these firms were producing IBM-compatible equipment (Laer, 2018). They were joined by IBM's European competitors, Bull, Siemens, ICL and Nixdorf, who "were involved in the negotiations of the exact wording of the agreement until their conclusion", "consulted with one another" and demanded that IBM would be forced to change its products to comply with the international OSI standard (Laer 2018, 13).

The limitation of this competition policy was that it took 11 years from implementing the idea to reach the settlement. Meanwhile, the Unidata merger had fallen apart in Europe, and a technological shift had made the central processing units irrelevant in favour of "applications, mini-computers, terminals and distributed computing" (Laer 2018, 6). This meant that IBM's dominant position in Europe deteriorated as well: even though IBM still had 50% of the market with large and medium sized computers, its market position was reduced to 38% in the total computer market (Laer 2018). IBM had started to provide installation for productivity options of non-IBM central processing units and was unbundling all software, but the EEC Commission nevertheless insisted that the antitrust efforts were needed as deterrent to abuse (Laer 2018).

2.3.3. American U-turn on antitrust and the EEC compromise

After 13 years of investigations, the American Department of Justice discarded its actions against IBM in 1982 as the evidence was deemed to be weak and charges

unfounded (Laer 2018). Instead, the Americans deregulated to allow AT&T to participate in foreign trade and to expand to the computer market creating competition to IBM. Additionally, high officials of the U.S. Department of State started to pressure the EEC Commission not to force IBM to release information on high value technology, which would aid particular IBM's Japanese competitors (Laer 2018). The American authorities adopted the Schumpeterian theory for economic development which states that competition in the high-tech industry is based on innovation rather than the price, and thus the strong market positions should be allowed (Laer 2018).

The antitrust case ended in 1984 in a compromise. IBM agreed to provide information of the interoperability of System/370 and of the SNA products at reasonable price and non-discriminatory basis for European companies producing IBM-compatible products (Laer 2018). In exchange, IBM did not have to admit to any of the Commissions allegations, which meant that they would not be liable for any compensation in the EEC area (Laer 2018).

Thomas Hoehn and Alex Lewis (2013) argue that there is sometimes a trade-off between innovation and competition: when the EEC Commission forced IBM to disclose interoperability of information, it may have increased competition in the EEC area, but at the same time, disincentivised private firms from innovating when return on the R&D investments decline. This was exactly the IBM's main objection against the antitrust remedy. IBM would end up revealing the internal design of its products through the interoperability information, which would enable competitors to free-ride on the IBM's research and development by simply coping new technologies, which in turn, would make creating new innovations that benefited their rivals less worthwhile (Laer 2018). The EEC Commission defended their stance by arguing that opening the market for IBM-compatible products would encourage other firms to invest in R&D, and that medium sized companies already created the most vital innovations (Laer 2018).

2.3.4. Antitrust today in the U.S. and E.U.

Today, the European Commission is the *de facto* global regulator in the modern economy when it comes to monopoly and merger enforcement, while the U.S. acts as the global jailer for international conspirators (Baker 2009). This is highlighted by the

fact that the U.S. has not actively pursued a major federal antitrust case in the technology industry since Microsoft. For example, the U.S. Federal Trade Commission's voted unanimously to close its investigation into Google Web search results business without bringing charges (Wyatt 2013). As Baker (2009) states:

> "The most active major agency will tend to dictate how the dominant firm operates worldwide, regardless of what other enforces might prefer."

This is why studying the European Commission's competition policy is useful for international business. Research into antitrust not only allows us to verify whether the current policy pursued by the leading global regulator is beneficial to the European consumers, but also to identify risks and opportunities that multinational enterprises face when making decisions across different jurisdictions. The transatlantic divide on antitrust allows us to experiment with and compare the different practices on how best to respond to the new reality in the market (Baker 2009).

Should we allow the European Commission to regulate the international market with its activist approach that is based on the post-Chicago economics? It was just recently when the EU's competition commissioner Margrethe Vestager defended state intervention as a way to guarantee fair competition, and argued for active use of "trade instruments, the bloc's public procurement rules and new EU procedures for screening foreign direct investments" to counter the Chinese state capitalism and U.S. protectionism (Toplensky, 2019).

While the U.S. approach has been more in the lines of self-regulation, relevant insights of what is good for the consumer are needed on both sides of the Atlantic. Big Tech has its critics in America. The project to build the second headquarters of Amazon in the City of New York was essentially abandoned due to the political backslash (Bond and Chaffin, 2019). The FTC recently organised a task force to asses the competition in the technology sector, and proposition by the Democrats about Glass-Steagall-style separation of platforms from selling customer data is also taking place (Stacey, 2019). Elizabeth Warren, one of the contenders for the Democratic Presidential nominee for 2020 elections, is a leading voice on regulating Big Tech (Foroohar, 2019).

2.4. Empirical evidence of market concentration

In Europe, Alphabet Inc.'s Google has a dominant market position in 1) search engine traffic (92.49% in December 2016), 2) in smartphone operating systems (70.91% in Jan. 2019) and 3) both among desktop and mobile browsers (63.17% and 59.26% respectively in Jan. 2019 measured by GlobalStats). To simply put, the overwhelming majority of Europeans do not connect to the worldwide web without any Google services. When taking into account the other U.S. based high-tech companies operating in European markets, such as Facebook, Intel, Amazon, Netflix and Microsoft, it would seem logical to conclude that technology markets are concentrating also in Europe.

McMahon (2018) outlines how market concentration has increased in the United States according to Furman and Orszag (2015), the Economist (2016), Grullon et al. (2017), Autor et al. (2017) and Döttling et al. (2017). The findings appear to be more global in the nature since Criscuolo (2018) points out how concentration has increased across several OECD countries. The research findings are in line with the everyday observations of activity in the field of mergers and acquisitions. The year 2018 broke the global all-time high for business deals, deals made worth $3.3 trillion in total (Platt 2018). The market concentration is less clear in Europe with Gutierrez and Philippon (2017) arguing for slower rise of market concentration and Valletti (2018) indicating that occurrence of concentration has not changed in the EU (McMahon 2018).

2.5. Implications of a more concentrated market

It is a fallacy to demand aggressive antitrust actions simply based on market concentration measurements showing a trend. If the large companies have achieved their position in a competitive market, it is most likely due to the fact that they have managed to offer superior products or services to consumers with competitive prices. If the objective is to maximize consumer welfare, companies should not be punished for being the best choice for consumers that have made the most suitable choices for themselves among the supply available in the market.

McMahon (2018) identifies two possible explanations for what is causing the market concentration. The first one is that there is lack of competition and large companies

have managed to increase their market power. The second reason would be that the growth of ‘superstar firms’ can be simply attributed to higher productivity. As clarified by McMahon (2018), these might not be mutually exclusive hypothesis.

Can it be proven that there is a link between firm productivity and market concentration? Ganapti (2017) reports weak correlation of market concentration causing higher consumer prices. Bessen (2017) explains concentration in U.S. markets through successful IT-investments that have increased the operating margins and higher productivity. Both Bessen (2017) and Ganapti (2017) argue for a positive relationship between market concentration and productivity. Autor et al. (2017) makes the point that the pace of innovation has increased alongside with multi-factor productivity during market concentration. Autor et al. (2017) report that more productive firms end up having larger market shares and higher profit margins using a model with widely different firms in the case of imperfect market competition. Andrews et al. (2015) recognise that the whole technology industry concentrates around certain companies that are significantly more productive, have larger company size, are more profitable, are most likely part of a conglomerate and issue more patents than their competitors.

Gutierrez and Philippon (2017) on the other hand took the stance that the increased market concentration in U.S. is best explained by higher market concentration. The authors admit that there was a connection between productivity and concentration in the 1990’s, but that it deteriorated in the 2000’s and is not significant enough to argue for positive effects of market concentration. Crouzet and Eberly (2018) propose that both market power and productivity are valid explanations, but it depends on the industry which one is a more significant factor.

2.6. Economics of two-sided markets

The novelty of innovations in the modern technology sector has sparked a new conversation about the suitability of conventional antitrust tools and the applicability of the consumer welfare theorem. Many of the technology service firms, such as Google, Facebook and Amazon, have become platforms that do not own their products and acts as intermediaries between consumers and clients. Filistrucchi et al. (2012: 2) define the two-sided markets as:

> "… a market in which a firm sells two distinct products or services to two different groups of consumers (the two "sides") and knows that selling more to one group affects the demand from the other group, and possibly *vice versa*."

For example, Google's web search serves two groups of consumers: advertisers buying online advertainments and customers making search queries with the search engine. It is a common practice that prices do not accurately reflect the cost of supplying the services or products on a platform to create a participative customer base on the other side of the platform (King 2018, 111). Since the marginal cost of supplying search queries is most likely extremely low, and prices for advertisers on the other platform are substantially higher than the cost of supplying the service, we could make the mistake of assuming that this constitutes as abusive market power through predatory pricing (Wright 2003).

Stylianou (2016) conveys a theory of systemic efficiencies in IT-business by citing secondary literature and applies it to high-profile antitrust cases raised by the European Commission and the U.S. authorities related to Google and IBM. His article is based on cross-disciplinary research, relying on the academic works of management, information systems and economics.

Stylianou (2016) argues how restrictions of competition by tech market leaders can lead to benefits for consumers and firms, not only to the seemingly anti-competitive firm. One of the points Stylianou makes is that companies in control of their service ecosystems should be allowed to exclude competitors' access to their customer base so that supervision related to updates, security and user experiences can be successful. For clarity, service ecosystems refer, for example, to the Apple Inc. offering the iPhone (hardware) with iOS (operating system) and applications through the Apple Store (distribution platform). While acknowledging how difficult it is to accurately quantify benefits deriving from these systemic efficiencies, Stylianou (2016) concludes that antitrust theories and practice should be updated to reflect the unforeseen pro-competitive behaviour in the ICT industry.

2.7. Innovation in antitrust: self-regulation vs. active-regulation – case Microsoft

The argument for efficient markets states would mean that high-technology industry is so dynamic with short business cycles and new disrupting ideas that even though monopolies could emerge from time to time, the markets are self-correcting. David J. Teece summarized quite well the main arguments for self-regulation already in 1999.

Antitrust can be at its worst harmful for the whole technology industry, since the competition to innovate and produce complementary products is often concentrated around dominant digital services that have become the industry standard (Teece 1999). The reasoning goes that a wide array of complementary services is more valuable for a consumer than a wider array of choices in platforms (Teece 1999). For example, the value of Apple's AppStore increases the more apps there are available for consumers. The AppStore also enhances competition among app developers that can bring their services available to owners of iOS devices through the AppStore. On top of this, Teece (1999) is critical how antitrust policy actions could disincentives for investors for taking high risks ability, and could it deliver results quickly enough to keep up with the rapid pace of change taking place in the technology industry.

Indeed, the Internet Explorer (IE) search engine developed by Microsoft Inc. used to have a dominant market position, market share of 79.9% to 66.42% from 2000 to 2009 with an all-time high of 95.04% searches done with IE in 2004 (theCounter.com 2009). It was the industry standard, and most software were coded to be compatible with IE. In retrospect, Microsoft was not able or did not actively develop its service to keep their customers satisfied when Google started to compete. The markets seemed to allow creative destruction to run its course and self-correct the search engine market into a new position that improved information available for consumers.

2.8. Consumer behaviour and information asymmetry – case Google

In the light of recent high-profile antitrust cases, it seems in practice that not only do consumers show bias in their decision making but also have to deal with information asymmetry in the markets. If the gatekeepers of the market information are the ones

also selling the products, can the sellers distort the entire flow of transactions on their own side?

This is what could have happened in the Google comparison shopping case raised by the European Commission in 2010. The seven-year investigation ended up with a fine for Alphabet Inc. of €2.42 billion in June 2017 for an infringement of Article 102 TFEU and for exploiting its dominant market position on horizontal search (Iacobucci and Ducci 2018). Google also committed to change their anti-competitive business practices to sell in an auction the advertising spaces for their rivals (Just 2018).

Horizontal search refers to a wide search query across materials on anything related to a topic, while vertical search is seeking information about a specific topic. For example, searching about apparel retailers in Google search is a horizontal search and searching for different types of shoes on, let's say on Zalando's webpage, is a vertical search. Consumers first make shopping searchers on Google's general page, and then pick a vertical search platform to narrow down on the desired result (Iacobucci and Ducci 2018).

It used to be so that the Google search engine provided organic and ad-based links to 3rd-party websites as results (Iacobucci and Ducci 2018). In 2007, Google added the universal search feature, which meant that you would see a "One-Box" answer graphic on top of the search results page that only gives answers through Google's own vertical services (Iacobucci and Ducci 2018). Later on, Google shopping service was launched that showed products directly in the One-Box – with a richer graphic format compared to other results (Iacobucci and Ducci 2018). Google had, and still has, market power as a horizontal search platform. The aim was to participate in tying the two services together in order to gain a dominant market share also in e-commerce with the Google shopping service.

In the Google comparison shopping case, The European Commission and the UK Court of Justice argued that customers display positional bias, which is the same as clicking search results that has a higher rank (Holzweber 2018). The European Commission (2017) ordered a study in which it was empirical proven that the click rates of the search result links were solely dependent on their ranking on the Google search page, rather than the based on the relevance of content: moving a link from rank 1. to rank 3. on the first search result page decreased traffic around 50%; moving

the link to ranking 10 reduced traffic by around 85% (ibid: at recital 460). Furthermore, the European Commission concluded that the competing comparison services, that were not in compliance with Google's Webmaster Guidelines, were demoted in ranking with Google's Panda algorithm while Google's own Shopping service remained immune (Iacobucci and Ducci 2018).

The CEO Alphabet Inc. and co-founder of Google Larry Page famously said on the U.S. Senate Judiciary Committee anti-trust hearing 21st of September 2011 that among digital services "competition is one click away". Bork and Sidak (2012) make the case that the low switching costs between search engines and the incentive to provide good end-user experience to sell access advertisements guarantees that Google cannot act against users' interest without losing search engine traffic and thus income from advertisements. We should recognise that the core idea of any search engine algorithm to discriminate between web content by ranking what is and what is not relevant for the search and consumer based on selected metrics (Iacobucci and Ducci 2018).

2.8.1. Behavioural Economics approach to consumer behaviour

Behavioural Economics is a fairly new field of economic research that aims to empirically study the choices actually made by economic decision makers to assess the applicability of the mainstream rational choice model. Thaler and Mullainathan (2000) define Behavioural Economics (BE) as "combination of psychology and economics that investigates what happens in the markets in which some of the agents display human limitations and complications". One the pioneers in the field of BE, Daniel Kahneman & Amos Tversky (1974) studied heuristics in decision making under uncertainty: they found out that while rules for decision making can be useful, they occasionally lead to systematic errors that cause harm. Kahneman (2011) has himself clarified that his works reveal not that the people systematically possess irrational negative traits, but that the people "are not well described by the rational-agent model".

One of the findings of BE is that the people have instinctive preference to stay with the status quo options, referred to as "status quo bias" (Lunn, 2012). The status quo bias was uncovered by Samuelson and Zeckhauser (1988), who studied consumers selection of health plans and retirement programs by faculty members and concluded

that people systematically preferred to stay with the status quo when choosing alternative services. When consumers face uncertain decisions, they might interpret default options as advice or proof of the most popular choice which can be safely mimic (Lunn, 2012).

Applying the status quo bias to the Google Android case, this would legitimise the European Commission's antitrust actions. Google demanded smartphone manufactures, who wanted to pre-install Google Play (the Google App Store) to their devices, to pre-install Google Chrome as the default search engine and commit not to sell devices that run on competing operating systems that are modified from the Android operating system (Commission, 2016). Google's business strategy was to leverage the dominant market position it has on web searches to acquire a larger market share in the growing market for smartphone web traffic & operating systems. If consumers behave according to the status quo bias, Google was able to effectively eliminate competition in the market for smartphone web browsers, because consumers would stay with the default option set by manufactures.

2.9. Mixed incentives of the competition authorities

Competition authorities (CAs) that act as agents for the public interest face a dilemma when it comes to choosing a legal standard to enforce. A legal standard is defined by Katsoulacosa et al. (2016, 278) as "the decision rule that provides guidance for how assessment should be undertaken and a decision should be reached". The choice for competition authorities is either to utilise economic analysis beyond the judicial approach to prove harm for consumer welfare or to simply follow the letter of law and appear as acting righteously in the public eye. According to Katsoulacosa et al. (2016), competition authorities' choice of which legal standard to apply will create either a social welfare-maximizing or reputation-maximizing results. Welfare-maximining results are achieved by:

- finding conclusive evidence of anti-competitive behaviour with investigations and economic analysis to reduce cost of making type 1 and type 2 decision making errors,
- creating a deterrence for businesses to with stain from pursuing anti-competitive actions,

- CAs taking into consideration their effects on legal certainty or predictability as regulators,
- enforcing antitrust actions that bear lower administrative costs (Katsoulacosa et al. 2016, 282).

Even though we would agree that CAs should adopt a legal standard that emphases the effects of the antitrust on social welfare, CAs themselves might not prefer to do so. The effects-based legal standard increases the probability that antitrust decisions are annulled at courts since proving actual harm to consumers demands higher standard of proof (Katsoulacosa et al. 2016).

Basing antitrust decisions more on economic analysis increases the disputability & complexity of evidence: what statistical models and tests to apply, what interpretations are given and exactly how to specify the rule by which decisions can be reached (Katsoulacosa et al. 2016, 289). If failure is not an option in the eye of the public, it would make sense for a CA to pick a legal standard that has lower and more explicit standard of proof. This will create reputation-maximizing results of the antitrust policy when CAs pursue a good public image. Especially, if the performance criteria of competition authorities focus on enforcement success (how many antitrust decisions are reached and the extent to which courts maintain their effect), there's even less incentives to pursue decisions that improve consumer welfare (Katsoulacosa et al. 2016).

The findings of Katsoulacosa et al. (2016) empirical search verify that competition policy can be implemented without due consideration of consumer welfare. The authors compute three indicators in their analysis that describe 1) the extent to which economic analysis is used in antitrust decision making, 2) how well the CAs try to pursue other analysis besides direct evidence of violation and 3) how much mandatory evidence is needed respect to the law. Their data set focuses on the performance of Russian CAs. The conclusion by Katsoulacosa et al. 2016 is that "the amount of economic evidence applied in reaching infringement decisions in Russia is extremely small", and that increasing the value of Economic Evidence Indicator leads to higher probability of annulment by courts, as discussed earlier.

The applicability of these results is not self-evident, since the political economy of Russia is characterised by high corruption, active state involvement in the market

economy and questionable application of rule of law. Katsoulacosa et al. refer to the work of Eduardo P. Ribeiro in 2016 about CAs of other BRICS (Brazil, India, China and South-Africa) countries, and assign their research as a contribution for review of antitrust policy implementation in BRICS-countries.

Because of Russian country specific attributes, the authors' findings do not have implications to the European Union member states, let alone EU agencies and institutions that can draw from an international pool of experts. Rather, this evidence can be taken as a reminder of how we should not assume that competition authorities always improve the market outcomes.

2.10. World beyond the price: antitrust in non-price competition

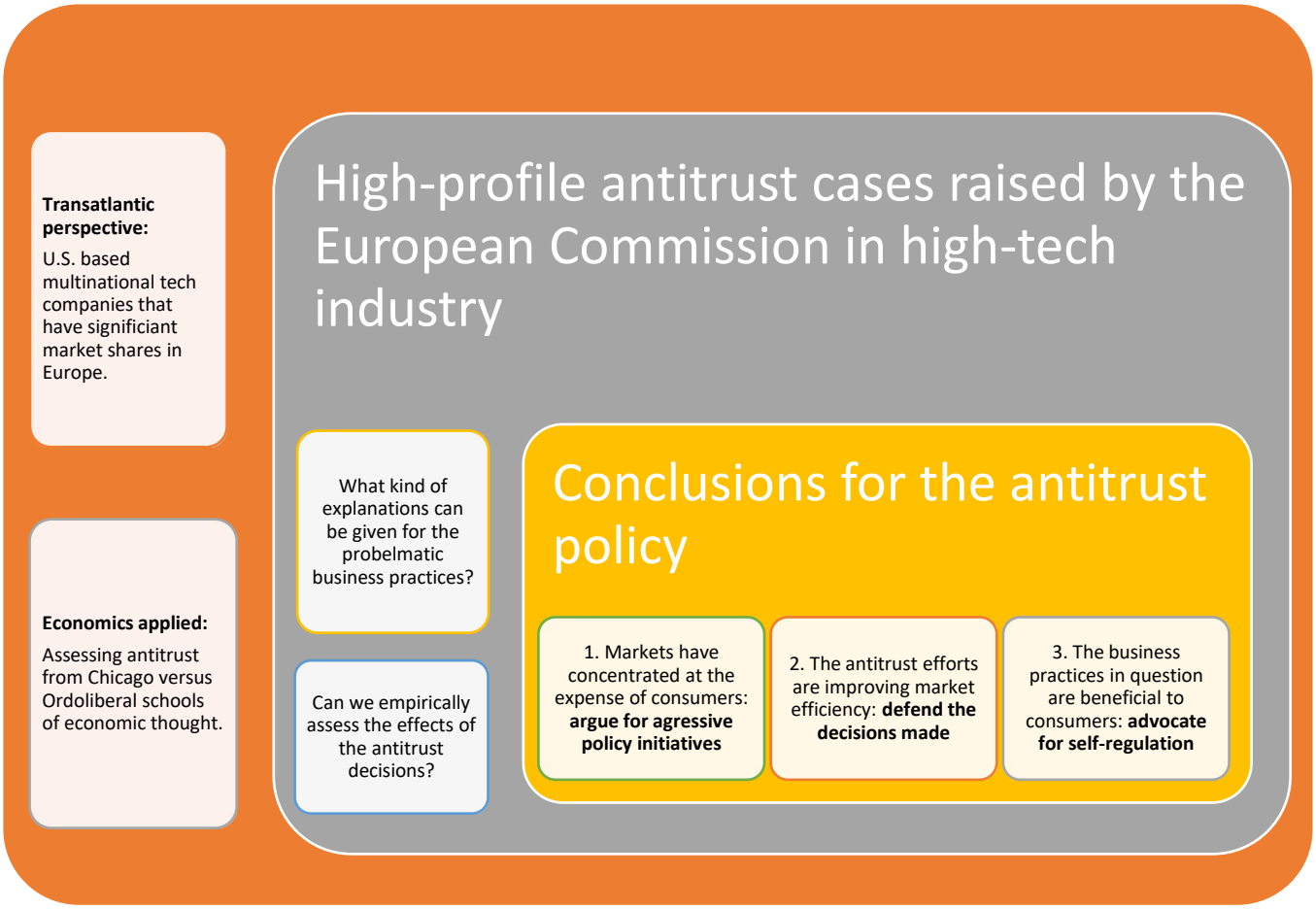
More data is available on customers personal information, behaviour, communication and transactions than ever before (Just 2018). There's no such thing as a "free lunch", when it comes to having access to platforms without paying a monetary price. The business model of platforms is to produce users whom attention or data can be monetized for the purpose of selling access to users for other parties (Just 2018). Users of Facebook and Google pay their use of the services by giving up away privacy and viewing advertisements on the services.

One of the most recent discussion in antitrust policy is that to what extent, if at all, should we assess welfare impacts of changes in service qualities other than price due to business decisions that aim to reduce competition in the markets. The Facebook merger and acquisition of WhatsApp instant messaging service is a great competition case example of this: WhatsApp remained free, but there was a prolonged concern over to what extent Facebook utilised users' personal communication in their business practices.

Natascha Just (2018) argues how antitrust policy should shift its focus from traditional price-oriented emphasise to focus on non-price competition. When it comes to governing online platforms, Just (2018) proposes that new priorities of antitrust policy should be quality, innovation & privacy instead of quantity produced and price. These aspects can could include, for example, the amount of advertisements shown, customer service aspects, upgrades to the service and personal data collected. The

justification for non-price competition is that for a multi-sided platform, it is a profit maximizing strategy to offer services for free (Just 2018). If the justification of a market depends on that there needs to be a direct monetary exchange, markets of non-priced assets are essentially excluded from competitive oversight and protection (Just 2000).

2.11. The Conceptual Framework of the thesis



The U.S. based companies have consolidated themselves as market leaders in high-tech industries, which has led to the European competition authorities to pursue antitrust actions against them. Due to the repetitive occasions of the European Commission vis-à-vis the "U.S. big tech" in courts, further research is needed to provide well thought explanations for the phenomena in an aggregate form, and to assess the potential benefits of antitrust for the European consumers. The different approaches between the EU and USA across Atlantic to regulate markets provides further ground for meaningful analysis.

Approach for the thesis is to explore publications about the antitrust from the perspective of economics to provide insights for the U.S. big tech business practices. These include discussions about economics of platforms (non-price competition, systemic efficiencies, tying and bundling practices); different doctrines of antitrust policy and the debate about effects of market concentration on consumer welfare.

The aim of the thesis is to provide a basis for how we should seek to understand the European antitrust policy in the high-tech industry. If the conclusion is not that the current path taken is satisfactory, then it becomes a question of either turning to self-regulation or arguing for policy initiatives that go further than what we have previously seen.

3. METHODOLOGY

Given the time frame for the execution of this thesis, primary data will be insufficient, therefore secondary data which is available, will highlight the necessary conclusions. The thesis will be based on empirical evidence found from secondary literature and readily available market data. These data and information sources will be applied to high-profile antitrust cases of IT-companies in the EU's single market to estimate the appropriateness of EU's actions.

The EU's antitrust policy will be primarily estimated from the perspective of two differing schools of economic thought on antitrust: Chicago and Ordoliberal. For the sake of building two different perspectives for the analysis, I will categorise theories from economic schools of thought under these two umbrellas. The rule of thumb I am using here is that if the theory leads to a conclusion that the antitrust efforts are misplaced, the opinions belong to the Chicago side, and if the findings from the theoretical frameworks conclude that the antitrust actions should be taken, they belong to the Ordoliberal approach. My aim here is simply to find arguments for and against the European Commission's competition policy rather than exhaustively explain the disparities and findings of different economic schools of thought.

The diverging views across Atlantic on economics behind antitrust provide distinct and well researched comparison points. Insights from secondary literature can be used to analyse the market failures and pro-competitive aspects of business practices in high-

tech industries. By then taking a closer look at the justifications of the high-profile antitrust cases raised by the European Commission, we can assess how well the antitrust decisions considered the economic impacts.

The IT-companies which will be investigated as the case studies are Google and Amazon. The reasons for choosing these two companies for my case study analysis are that firstly, they are representative as a sample of the largest IT-corporations in the market, since they are among the most valuable companies in the global market. Secondly, both Google and Amazon have been subject to antitrust investigations by the European Commission for other reasons than illegal state-aid. Thirdly, both companies operate in a platform market, which allows us to have a discussion on how well the current antitrust remedies are suited for the modern economy.

The HQs of these IT-firms are in the United States, and they have strong business operations in the European markets. The relevant market is the European Economic Area where the European Commission's antitrust authorities have jurisdiction and where their decisions affect European consumers. The EU's antitrust policy is defined as fines and orders given to the IT-companies that significantly affect their business operations in Europe. These are, for example, sanctions against anticompetitive business agreements and mandating anti-competitive business practices to be changed. The data and information sources for the antitrust law and policy in the EU and for the examined IT-companies in this thesis are provided in Table 3 below. As indicated earlier, the sources I will use will range from reports and studies, and the official EU websites.

Table 3: Data and information sources used for further analysis and discussion

Topic	Type of Source	Data/Information Source
EU Antitrust Policy	Court cases, secondary literature and reports	https://ec.europa.eu/commission/index_en
Case studies:		
Google	Secondary data obtained from previous literature	Edelman, B. and Geradin, D. (2016). Android and competition law: exploring and assessing Google's practices in mobile. *European Competition Journal*, [online] 12(2-3), pp.159-194. Available at: https://doi.org/10.1080/17441056.2016.1254483 [Accessed 4 Apr. 2019]. Etro, F. and Caffarra, C. (2017). On the economics of the Android case. *European Competition Journal*, [online] 13(2-3), pp.282-313. Available at: https://doi.org/10.1080/17441056.2017.1386957 [Accessed 17 Mar. 2019]. Todd, P. (2017). Out of the box: illegal tying and Google's suite of apps for the Android OS. *European Competition Journal*, [online] 13(1), pp.62-92. Available at: https://doi.org/10.1080/17441056.2017.1314136 [Accessed 18 Mar. 2019].

Amazon	Secondary data obtained from previous literature	Khan, L. (2019). Amazon's Antitrust Paradox. *The Yale Law Journal*, [online] 126(3). Available at: https://www.yalelawjournal.org/note/amazons-antitrust-paradox [Accessed 18 Mar. 2019].
Chicago School of Economics	Theoretical framework and ideas obtained from previous literature	Bork, R. and Sidak, J. (2012). What Does the Chicago School Teach About Internet Search and the Antitrust Treatment of Google? Journal of Competition Law and Economics, 8(4), pp.663-700. Crandall, R. (2019). The Dubious Antitrust Argument for Breaking Up the Internet Giants. *Review of Industrial Organization*. [online] Available at: https://doi.org/10.1007/s11151-019-09680-y [Accessed 18 Mar. 2019]. Melamed, A. and Petit, N. (2019). The Misguided Assault on the Consumer Welfare Standard in the Age of Platform Markets. *Review of Industrial Organization*. [online] Available at: https://link.springer.com/article/10.1007%2Fs11151-019-09688-4 [Accessed 17 Mar. 2019]. Posner, R. (1979). The Chicago School of Antitrust Analysis. University of Pennsylvania Law Review, 127(4), p.925. Tucker, C. (2019). Digital Data, Platforms and the Usual [Antitrust] Suspects: Network Effects, Switching Costs, Essential Facility. *Review of Industrial Organization*. [online] Available at: https://doi.org/10.1007/s11151-019-09693-7 [Accessed 18 Mar. 2019].
Ordoliberal School of Economics	Theoretical framework data obtained from previous literature	Vatiero, M. (2015). Dominant market position and ordoliberalism. *International Review of Economics*, [online] 62(4), pp.291-306. Available at: https://link.springer.com/article/10.1007%2Fs12232-015-0246-8 [Accessed 7 Apr. 2019].

		Talbot, C. (2016). Ordoliberalism and Balancing Competition Goals in the Development of the European Union. *The Antitrust Bulletin*, [online] 61(2), pp.264-289. Available at: https://journals.sagepub.com/doi/10.1177/0003603X16641238 [Accessed 7 Apr. 2019]. Choi, J. and Stefanadis, C. (2001). Tying, Investment, and the Dynamic Leverage Theory. *The RAND Journal of Economics*, 32(1), p.52.

4. ANALYSIS AND DISCUSSION

4.1. The Chicago School of Economics

The main presupposition of the Chicago School is that competition by free enterprise creates efficient outcomes by reaching a close state of perfect competition. In this neoliberal approach to economics, consumers and firms are rational economic agents who are utility-maximising or profit-maximising - on aggregate. As Milton Friedman explained it, there might be individuals who from time to time seem to be acting irrationally, but when analysing large groups of people, we see the common rationality emerge as systematic and regular patterns that can be predicted (Idea Channel, 1978).

In analysing antitrust, the Chicago school is looking at anti-competitive business practices from the lens of price theory, i.e. demand curves slope downward & raising prices will re-allocate resources to the best uses (Posner, 1979: 928). Markets will self-adjust to correct disequilibria in the markets: if there's monopoly profits that a firm is making, other competitors will notice it and pursue to enter the market to produce more of the same goods & services, which will increase competition.

Entry-barriers, asymmetry of information & market failures are acknowledged, but the Chicago scholars most often demand a high burden of proof to show that these factors are really in play and disfavour government intervention with the concern that it will create allocative inefficiencies and larger deadweight losses than the original industry concentration.

Free markets for the Chicago School means that companies & consumers are free to make their own decisions, not that the economy should be rearranged to reflect the optimal state of being. Since economic agents are already behaving rationally, the current industry structure most often reflects quite well the appropriate dynamics of competition (Bork, 1978), if free markets are truly allowed to work. For scholarly work that fits the Chicago approach, see Tucker (2019), Melamed and Petit (2019), Todd (2017), Bork and Sidak (2012), Crandall and Jackson (2011), Posner (1979).

4.2. The Ordoliberal school of though

The main basis for Ordoliberalism is that markets without the supervision of the state face a high risk of self-destruction (Talbot 2018, 267). It is in the profit-maximising interest of the companies to eventually drive out competitors from the market and establish themselves as monopolies (Talbot 2018, 267). The outcome is high deadweight losses for consumers in terms of lower supply of goods offered at a higher price, while the innovativeness of the industry, the future prospects of economic advancement, is forsaken in the sluggish and inefficient status quo. On top of this, the established corporations will transform their economic power to political power in order to lobby themselves a pro-business environment with favourable regulation and subsidies (Vatiero 2014).

The Ordoliberal approach highlights the need for the state to guarantee competitive markets by antitrust enforcement and competition law. The antitrust authorities should have broad powers and discretion to tackle anti-competitive conduct early on, while the competition law should aim to establish structurally sound markets where there are multiple firms that compete on merit. Business practices are divided in to two categories according to the European Court of Justice's *Hoffmann-La Roche* decision: 1) desirable normal competition on merits, and 2) sanctionable methods different from normal competition that allows the firms to behave independently from competitors & customers (Vatiero 2014).

In analysing the antitrust cases, Ordoliberals will emphasise the importance of market power, entry barriers and possible irrational consumer behaviour. The Ordoliberals employ game theory and different tests to assess the conduct of a firm with market power: the sacrifice test, the no economic sense test and the equally efficient

competitor test (Vatiero, 2014). Authors that fall within the Ordoliberal category are Katz (2019), Iacobucci and Ducci (2018), Khan (2017), Edelman and Geradin (2016), Choi and Stefanadis (2001).

4.3. Google's Android vs. the European Commission

4.3.1. Android business practices

Google's Android mobile operations system is an intermediary between hardware producers, application developers and end-users (Edelman and Geradin. 2016). Hardware manufacturers benefit from having an ecosystem of software applications from which to pre-install application, data on user demand and brand support for marketing (Edelman and Geradin, 2016). Android allows application developers to standardise by creating a large market & IT-infrastructure with the same coding language for apps and to interact with users by sending and receiving data (Edelman and Geradin, 2016).

The Android is backed by a business community called the Open Handset Alliance whose aim is to develop an open and comprehensive platform for mobile devices: Android is offered free-of-charge to hardware manufactures and anyone can download the code free and modify the operating system to create an Android "fork" or "bare" device . The popularity of Android is due to the wide arrange of options when it comes to personal customisation and lower prices compared to competing portable devices. Main competitor's for Android operating system are Apple's iOS and Microsoft's Windows.

The business model of Android is a multi-sided platform where by "consumers decide about the success of a service, but the remunerations comes from advertising clients" (Körber 2014, 24). Additionally, Google collects a commission from app developers' sales through the Google Playstore. The distribution of Android with zero prices allows Google to gain a larger share of market by increasing mobile usage and which can be monetised later on (Körber, 2014). Google has its proprietary software package known as the Google Mobile Services (GMS) that include services such as Google Maps, Gmail, YouTube and Google Play (Edelman and Geradin, 2016). As Google describes

it on their website for Android: “ GMS is only available through a license with Google and delivers a holistic set of popular apps and cloud-based services.“

In order to guarantee commercial success of Android, Google has made wide array of agreements with the original equipment manufacturers (OEMs), meaning smartphone and tablet producers. These include Mobile Application Distribution Agreements (MADAs), Anti-Fragmentation Agreements (AFAs) and Revenue Sharing Agreements (RSAs). Mobile Application Distribution Agreements.

According to Edelman & Geradin (2016), the Mobile Application Distribution Agreements gave OEMs royalty-free access to the GMS suite in exchange for:

I. pre-installation of all Google applications that Google specifies on the devices,
II. prominent positioning of the GMS suite on the devices’ default home screen,
III. choosing Google Search as the default search engine provider for all Web search access points, on “Assist” and “Voice” search functions and on the devices physical “Home” button or through “Swipes up” digital home button,
IV. geographic location information of users through the default settings of the Google’s Network Location Provider.

Additionally, the Google required the Original Equipment Manufacturers to sign an Anti-Fragmentation Agreement, which means that the OEMs commit not to distribute modified versions of Android operating systems, the forks, on any of the manufacturer’s devices (Edelman and Geradin, 2016).

The European Commission (2018) uncovered that Google also provided Revenue Sharing Agreements to OEMs that granted a share of Google’s advertising revenue from searches on device basis. The condition was that the device manufacturers restrained from installing any competing search engines besides Google Search.

4.3.2. European Commission's concerns

The European Commission (2015) accused Google of "hindering the development and market access of rival mobile operating systems, applications or services for smartphones and tablets". The Commission points out that Google abused its dominant market position in markets for search services, mobile operating systems and app stores with the MADAs by denying competitors' access to be installed by OEMs, the AFAs by denying customers the right to choose alternative Android forks and restricting competition with the RSAs. The antitrust fine given was €4.34 billion.

4.3.3. Ordoliberalism: utilising market power to raise entry barriers

Edelman and Geradin (2016) argue that Google apps provide special market power since YouTube has no close competitors and Google Play has considerably more applications than competing Android app stores. When choosing an operation system, hardware manufacturers have less options than before since Android's main rival iOS is not available for third-party hardware, such as Samsung, and other smartphone projects, for example Amazon's Fire Phone and Nokia X, have not succeeded in the markets without the high-demand GMS suite (Edelman and Geradin, 2016).

When Google is tying Google Play with Google Search, it incentivises the OEMs to pre-install the GMS suite with the effect of excluding rivals from the market (Etro and Caffarra, 2017). This lack of substitutes allows Google to protect and enlarge its dominant position in search services and other key apps that have rivals (Edelman et. Geradin, 2016). The dynamic version of the leverage theory indicates that in some cases, where among other things, high-risk upfront investments are needed, tying by a dominant firm can discourage rivals from entering the market, and therefore reduce investments and innovations in the market (Choi and Stefanadis, 2001).

Competition in search services is deemed to require "scale in search", meaning the company has enough data on searches to improve the search engine algorithm, and "network effects" that come from attracting a large user base that creates advertising revenue which can be invested back into research and development (Etro and Caffarra, 2017). Since developing search engines is associated with high fixed costs

and reaching viable scale, tying reduces rival entrant's profits and thus deters entry (Etro and Caffarra, 2017).

There is a strong default bias associated with consumer behaviour. It is assumed that a large proportion of consumers use the applications that are pre-installed on the mobile devices, notably in the case that they are placed in dominant and default position (Etro and Caffarra, 2017). As discussed previously in the literature review, empirical studies in the field of behaviour economics provide a sound basis for these arguments. For a search service provider, being able to bargain your way as the default engine becomes an essential part of the competitive process.

The ordoliberal school of thought on antitrust would conclude that the domineering characteristics MADAs, AFAs and RSAs show that Google has significant market power that has been used for anti-competitive purposes. Google can select major OEMs in the market and pay for exclusivity which effectively denies rivals from reaching the necessary scale to compete with Google Search (Etro and Caffarra, 2017). This leaves the competing application developers with Android forks, the availability of which have been decreased on the market with AFAs. Bundling the Google Play with other popular Google services makes it more arduous for a third-party application developer to effectively compete against Google on Android forks, because they have to come up with their own App store alongside other substitutes for Google's services (Etro and Caffarra, 2017).

The end result is that 1) the entry deterrence eliminates the benefits from having better or differentiated search engines, 2) Google is able to maintain larger margins from advertisers, and 3) this can reduce investments to innovations since smaller rivals give up and the unchallenged Google has a lower need to improve its technological advantage (Etro and Caffarra, 2017).

4.3.4. Chicago: dynamic markets behind misconceptions

There is complementary demand for Android: consumers have unlimited demand for applications, while the application developers for Android seek the largest market for their apps (Bork and Sidak, 2012). Google does not have incentives as such to exclude competing search engines from Android, because this would reduce consumer choice

and degrade the quality of Android as an open source platform where any developer can create and distribute applications (Bork and Sidak, 2012).

If excluding would take place, app developers and app users of Android would switch to competing operating systems, and potentially new competing open source platforms would emerge (Bork and Sidak, 2012). Advancements in convergence of coding languages and new coding standards has meant that it is easier than ever before to release the same app across multiple platforms (Todd, 2017). OEMs would terminate their agreements with Google when any reduction in demand for Android would be capitalised by competing suppliers of operating systems and applications (Bork and Sidak, 2012). When the assumptions of the single monopoly profit theorem holds, the monopoly firm cannot expand its market power from one product to another without for loosing total profits (Bork and Sidak, 2012).

It is mandatory to anyone to adopt Google's services. Contracts between Google and OEMs are a result of voluntary transactions which are mutually beneficial to both parties of the exchange (Bork and Sidak 2012). The favourable terms that Google is able to negotiate are a result of their superior product and business strategy (Bork and Sidak, 2012). Why should not Google be able to profit from having the best search engine or being the only "viable" video streaming service on the market? Besides, the Revenue Sharing Agreements are evidence that Google's market power is overestimated: if Google could behave like a monopoly, they would not need to share their advertisement revenue with device manufacturers in the first place (Bork and Sidak, 2012).

For Android, MADAs, AFAs and RSAs are needed to ensure competition. The deals are not exclusive – only default arrangements (Bork and Sidak, 2012). Consumers value having a pre-installed search functions on their new devices, default search engines reduce the transaction costs of purchasing new phones, and if the consumers are not happy with the default settings, they can download Bing or a different search engine for a price of zero in about 30 seconds (Bork and Sidak, 2012). Users can self-select freely: they can switch Google's apps from default settings and prominent placements on their phones, or delete them completely (Todd, 2017). The default bias can have an effect, but it is limited, for example Google Maps is installed on many iPhones despite Apple having their Apple Maps as the default service (Todd, 2017).

There are also integrated efficiencies to be gained from having a single-brand suite of apps, rather than a mixture of different firms' apps (Todd, 2017). This is because a single-brand suite can interoperate with the applications, other devices and the underlying operating system in a way that creates new benefits for consumers (Todd, 2017). For example, voice search can be used across the different applications, you can take phone calls with your smartwatch, and details of an event on email can be recognised by the map and calendar apps to conveniently create a GPS-route or a schedule input. Furthermore, consumers' search costs are reduced when they have all of the essential apps pre-installed (Todd, 2017).

The Anti-Fragmentation Agreements have pro-competitive rationale: Google's Android would be in a disadvantage compared to Apple's iOS and Microsoft without interoperability of the GMS suite. If OEMs could cherry-pick which Google's apps to supply, besides licensing Android for free, the result can be that Google is not compensated for its development of apps, some of which do not even directly create revenue, such as Google Maps (Todd, 2017). Additionally, app-developers would face the risk of not knowing which apps and functionalities would be present, which would increase their cost of development, and ultimately give reasons to opt for less fragmented platforms. (Todd, 2017). App developers benefit from having Google's single-brand suite apps without the Android forks, because this ensures maximum compatibility of their apps across various devices and services (Todd, 2017).

Rival search engines can compete with Google search despite its dominance in search. The scale to compete in search, the number of necessary searches, is certainly smaller than Google's scale (Bork and Sidak, 2012). Every search engine company has started from zero searches, incurred the cost of development and went through the process of learning by doing (Bork and Sidak, 2012). If scale were a barrier to entry, Google's entrance to the search engine market in 1998 would have failed due to the first-mover advantage of Yahoo (Bork and Sidak, 2012). Additionally, so long as the search engine is able to present an attractive return on investment from their advertising services, they do not have to match Google's scale to earn advertising revenue to invest it back to R&D (Bork and Sidak, 2012).

Bork and Sidak (2012) draw attention to the fact that Google's critics relating to the antitrust cases are especially its competitors: Microsoft, Yelp, FairSearch.org

representing for example TripAdvisor and Oracle, and others. Microsoft has its own default agreements with OEMs: Bing is the default search engine on most personal computers (Bork and Sidak, 2012). Instead of competing with Google on investing in efficiency, quality or innovation, the competitors focus their efforts in seeking antitrust actions (Bork and Sidak, 2012).

4.3.5. Google has every right to appeal

Overall, Google has increased competition with Android, provided app developers with a large market with lower entry costs, decreased OEMs costs of production with free-licensing and ultimately provided high-quality phones to consumers with lower prices. When comparing the Ordoliberal arguments against the Chicago defence, the Chicago approach has a better understanding of the industry dynamics which create these antitrust concerns. Google has certainly made business more difficult for its competitors, but the purpose of antitrust should not be to guarantee rival's profits or punish Google for being the best option for the European consumers

Consumers have had the choice to personalise their portable devices with low switching costs, while the original equipment manufacturers always had the chance to refuse deals with Google and keep using Android forks free-of-charge. The fining of Google simply disincentivises innovation in the high-tech industry in favour of less efficient rivals. Competition on "merits" should not prohibit large firms from serving their customers in the best way. The pro-competitive reasoning for the agreements with OEMs have been ignored by the European Commission.

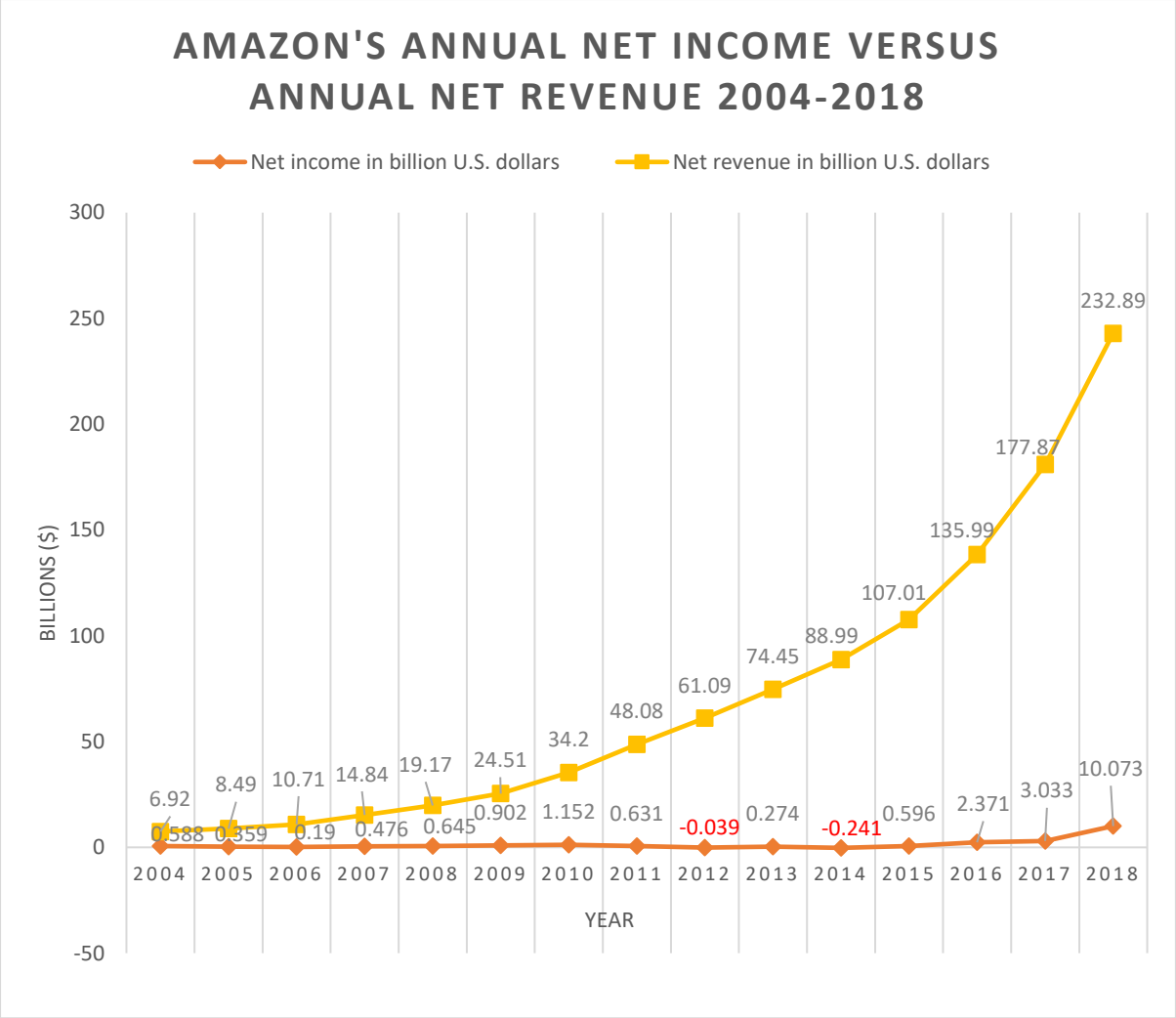
Even though Google currently enjoys a dominant position in the market for applications, search engine services and mobile phone operating systems, future is promised to no one. Todd (2017) describes that high-tech industries are subject to short-term and continuous innovation cycles that can override the dominant firms position in competition for the market. Google faces significant competition from Amazon's voice-assistant services that could displace general internet search in the long-run and from Facebook's Messenger app which has been made into an app platform that application developers can write for (Todd, 2017).

4.4. Amazon's e-book practices under the EC's scrutiny

4.4.1. Amazon and the distribution of e-books

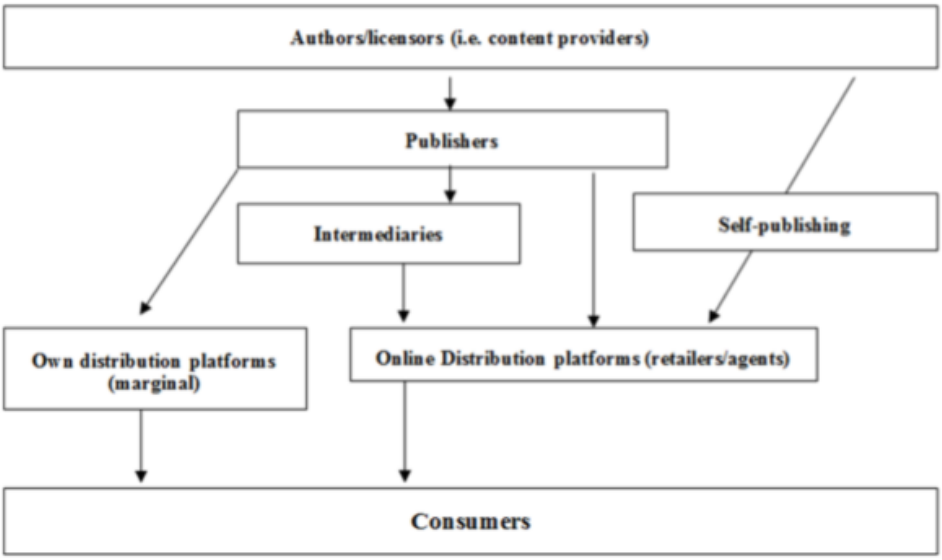
Amazon Inc. is an U.S. based multinational company that specialises in e-commerce. Over the years, Amazon has developed into a conglomerate that is in the business of logistics, consumer electronics, groceries, cloud computing services, baby products, retailing, facial recognition, voice recognition, robotics, video streaming services and many others (Desjardins, 2019). In his first letter to shareholders, the current CEO and Founder of Amazon Jeffrey Bezos (1998) outlined that Amazon's business strategy is based on the long-term shareholder value that is reached by focusing on the customer. In order to achieve this, Amazon has heavily invested in consumer loyalty and market share expansion by offering competitive prices to consumers and investing the revenue back to the company's operations. This has meant Amazon has been managed close to its break-even point (Del Rey, 2018), as you can see from table 4. While the company has reported record high profits of $10.07 billion in 2018, investors of Amazon are still patiently waiting for the larger long term pay-offs from expansive growth (Khan, 2017).

Table 4: Amazon's profits compared to its total revenue. Data source: Statista 2019, exhibit 1.



Amazon was originally launched as a bookstore in 1995. Today, Amazon is one of the largest retailers of e-books that are offered through Amazon Kindle reading devices that run on Amazon Fire OS, an Android fork. Authors that seek to publish their books in a digital format can either directly contact Amazon Publishing, Amazon's proprietary publishing service, or go through the traditionally way of licensing their work to publishers who will then negotiate with Amazon on the distribution to end-users or use their own distribution platforms. The content providers have also the option of self-publish through competing online distribution platforms. Table 5. outlines the possible ways for authors to get their e-book distributed.

Table 5: Distribution of e-books to consumers (European Commission, 2017).



In order to guarantee low prices for consumers and stay ahead of the competition, Amazon has made vertical agreements with the publishers that include terms such as (European Commission, 2017: 9-11):

- Business Model Parity Clauses that require the publishers to notify and offer Amazon the same terms for distribution of e-books under a given business model that is being offered to competing e-book retailers. Business models in the context of E-book distribution mean the different ways in which access and pricing are arranged, for example “reseller, subscription, rental, bundling with physical books or book clubs, by download, partial downloads per page, streaming or any other form of digital distribution”;

- Selection Parity Clauses that regulate the release of e-books give also Amazon 1) a given e-book available (in exchange for payment or for free) in within a certain territory and/or at a particular date and time that the e-book supplier distributed through any competing e-book retailer, 2) the e-book supplier must make available to Amazon any “feature, functionality, usage rule, element or content for one or more e-books” that the supplier provided to rivals and 3) in some agreements Amazon required that if there are content and features that the Amazon IT-infrastructure does not support, the e-book supplier will have to provide equivalent features and content available at Amazon’s request;

- Discount Pool Provision is used to describe a credit system in which Amazon is able to use at its discretion credits to discount the sale price of supplier's e-books. This is referred to as the discounted price. The system works so that if there are e-books suppliers whose products are sold through Amazon above competing e-book distributors prices, the difference between Amazon's retail price and that of the rivals' agency price or reseller price accumulates credits. These credits can be used to reach the discounted price on Amazon, which is used to calculate for the e-book suppliers' profits and Amazon's commissions.

- Notification Provisions mandate the publishers to inform Amazon if they distribute e-books with a business model that is not currently being offered for Amazon, if they make certain e-books available at a different date or time that is not available to Amazon, or if they offer features, content or functionalities to competitors that are not presently offered to Amazon.

Hereafter, all of these agreement clauses are commonly referred to as Parity clauses. In summary, Amazon requires the e-book suppliers to provide as favourable terms and deals as competing e-book distributors have gained at any time. The European Commission (2017) was concerned that these business practices can constitute as entry or expansion barriers, and that Amazon appears to distort competition on merits when it is able to use its market power to gain advantages that its competitors are not able to negotiate. Especially, the European Commission (2017) highlights that these Parity clauses reduce incentives for publishers to develop alternative distribution business models, innovative e-books and promote their products with discounts. The idea is that Amazon would be able to free-ride on the e-book suppliers' ideas and investments when Amazon has to be provided with the same features, prices and distribution models as its competitors. The end result is that Amazon's competitors are not able to differentiate themselves in the e-book market, which can allow Amazon to capture a larger market share and charge higher prices in the future while the European customers are denied the choice and more innovative e-books (European Commission, 2017).

4.4.2. Ordoliberals: The Consumer Welfare standard, predatory pricing, barriers to entry and data collection

Khan (2017) argues that Amazon is participating in predatory pricing by outbidding its rivals and withstanding loss of profits in the short-term. Because of the Consumer Welfare (CW) standard & Chicago economic theory insights that dominate the U.S. antitrust doctrine, the antitrust enforcement authorities are not able detect sophisticated exclusion tactics used by, for example, Amazon.

Consumer Welfare standard is based on the price theory developed by the scholars of the Chicago school which has caused antitrust doctrine to overly focus on consumer prices as metrics for assessing competition (Khan, 2017). According to Khan (2017), the move away from the theory of economic structuralism that uses the concentration of the market structure as an indicator for the state of the competition causes the risk that antitrust authorities miss efforts by the dominant firms to block new entrants, hike prices and degrade service quality while maintaining profitability.

Additionally, Amazon can use its Marketplace, scale and sophisticated technology tools to collect data which it can exploit in price discrimination, spotting high-demand products before its rivals and leverage its market power from one line of business to the other (Khan, 2017).

From the Ordoliberal perspective, Amazon's e-book readers can be seen as an effort to pursue customer lock-in. While the purchased e-books for the Kindle reader are available also through the Amazon app which can be downloaded on other devices, the e-books purchases can't be as such viewed by competing e-book readers (European Commission, 2017). This poses the question, will significant amount of Amazon e-book customers be prevented from switching to cheaper or more high-quality e-book distributors, simply because customers would not be able to access their content outside of Amazon's closed e-book ecosystem?

The Discount Pool Provision can prevent Amazon's competitors from offering temporary discounts to gain larger share of the market with their e-books. This may further enhance Amazon's dominant position when competition on price becomes impossible. On top this, the Discount Pool Provision allows Amazon to undercut

suppliers' profits at its discretion which might disincentives publishers to expand their collection of e-books to less known and novel authors.

The notification clauses enable Amazon to collect information effectively on their competitors and gain an edge in product innovation. When the e-book suppliers are obliged to inform Amazon of their new features, content and access arrangements available in the market, Amazon can monitor their implementation and then simply copy the e-books supplier's business practices without compensating for the investments made and ideas created. When the publishers are not able to capitalise on their innovation efforts, they cease to innovate.

In summary, Amazon's business practices are anti-competitive, because they can effectively prevent competitors from differentiating their offering. The Parity Clauses disincentive e-book suppliers from innovating new e-book formats and participating to price competition. Ordoliberals would join with the European Commission efforts to prohibit these Parity Clauses to stimulate competition in the e-book market.

4.4.3. Chicago: Let prices work for the consumers

As a general rule, low prices should be seen as a benefit to consumers and an essential part of the process of reaching perfect competition (Rato and Petit, 2013). The Discount Pool Provision in practice guarantees that consumers gain a market price close to that in the case of perfect competition. Since the markets are assumed to be self-correcting, any excessive profit made by a supplier will be challenged by competitors that would enter the market, in this case, distribution of e-books. Even if there would be lag in the entrance of competitors into the market, as discussed previously in this paper in section 2.2.5. with the *Trinko* decision, temporal supra-competitive profits should be allowed to stimulate innovation and entrepreneurship. This will help stimulate competition when innovation and entrepreneurship has larger pay-offs.

Melamed and Petit (2019) advocate the Consumer Welfare standard, because prices and output can be clearly observed and measured compared to the formidable task of measuring barriers to entry and expansion. Conduct should not be considered anticompetitive if the business practice simply does not maximise consumer welfare

or if the court or enforcers prefers an alternative status quo that would be better for the consumers (Melamed and Petit, 2019). The CW standard has been internationally successful as a tool for good public governance, since it limits the antitrust decision makers to focus on economic welfare, rather than non-economic objectives (Melamed and Petit 2019).

Bork and Sidak (2012) use the Nobel laureate George Stigler's definition of entry barriers: it is the cost of production that is being borne by the market entering firm, but not incurred by the established companies. When assessing entry-barriers, it is vitally important to differentiate between "necessary to succeed" and "necessary to compete" (Bork and Sidak, 2012). For example, if the e-commerce industry would have significant entry-barriers present, Amazon itself would not have been able to effectively compete with the original pioneer of e-commerce, eBay, which has had the first-mover advantage. The Business Model Parity Clause as such is not an entry-barrier, because it certainly does not prohibit competitors from developing alternative business models.

Tucker (2019) points out many interesting aspects of network effects and data as a resource in competition within the high-tech industry. Network effects destabilise market power rather than increase it: rapid growth of platforms is countered by the risk of rapid degrowth in the case of new prominent technologies and innovations (Tucker, 2018). This explains why MySpace social networking site lost in competition to Facebook (Tucker 2018). By definition, "indirect network effects occur when the value of the product or service is larger for a certain group of users, when more users who are in a different category of users are using the service" (Tucker, 2019: 3). This is the case of Amazon e-books: the value of Amazon e-book ecosystem increases the more there are publishers and authors suppling e-books.

When it comes to collection of data Tucker (2019) argues that data is non-rival in its consumption, for example multiple firms may place cookies on the same website to collect data on the same consumer. The near-zero marginal cost of production and low distribution costs coupled with cloud-based analytics services and free open source technologies bring data intelligence available even to the smaller companies regardless of their scale. Additionally, there are multiple firms who sell insights about the markets through consumer data (Tucker 2019). Based on this, data collection is not an essential facility that can be controlled by few large technology platforms

(Tucker, 2019). When these insights are applied to the Amazon e-book case, it becomes clear that the Notification Provision does not take away possibilities from rivals to collect data on the performance of their e-books or consumer demand for different e-book business models.

The conclusion of Chicago antitrust approach is that because Amazon is the most efficient distributor of e-books, we should allow it to provide them unconstrained to the market. Consumers benefit from lower prices and alternative e-book business models that are scaled by Amazon. Since the agreements between Amazon and publishers have been made free-willingly, the publishers have most likely weighted the benefits of market access with proprietary business models and concluded that they will be better off with doing business with Amazon.

4.4.4. Amazon: the pioneer of the e-book industry

The reason why Amazon has been able to negotiate favourable terms with the e-book suppliers is because it has been able to facilitate a market for good-quality and high-demand e-books, which ultimately benefits the European consumers. In the light of these Parity clauses, other distribution platforms have not been denied the right to do business. Contrary to the European Commission's views, e-book suppliers are not dependent on Amazon and do not have to concede their returns to Amazon. In practice they concede to Amazon's terms, because it is in their best interest to reach the largest audience of readers as possible. This is understandable: not everyone needs to have their own distribution channels. However, arranging someone else to sell e-books on your behalf should not entitle you to have the return that you could make by acquiring customers by yourself. Simply because e-book suppliers would like to have higher profits does not provide us with a useful decision-making rule for antitrust decisions. Amazon's seemingly unfair trade practices have only one goal, and that is the customers. Parity clauses bring the e-book market closer to the situation of perfect competition where consumer welfare is maximised, when Amazon can effectively bid against competitors and employ new business models quickly.

The indirect network effects make sure that if there really are supreme e-book distribution platforms available compared to Amazon, e-book suppliers and publishers will switch to do business with them instead. Amazon Kindle has built up switching

costs for consumers who will incur a nuisance of switching apps, but even now consumers are able to access their e-books on other devices than Kindle. The mild lock-in effect is nevertheless a useful incentive for e-book distributors to gain a return from their endeavours and innovativeness.

If we do not allow companies to obtain better terms and conditions compared to their rivals for having savvy business strategies and high-demand products, how can European companies in turn become market leaders?

5. CONCLUSIONS

5.1 Summary of findings

I confirm that vertical agreements made by Google and Amazon have pro-competitive justifications that have been failed to address by the European Commission in the antitrust procedures. Agreements between original equipment manufacturers and Google have been instrumental in making sure that Google can develop its applications without free-riding issues, compete against other single-suite app brands and continue to provide Android and many other services free-of-charge to consumers and companies alike. In the Amazon e-books case, Parity clauses have enabled Amazon to provide more high-demand e-books with cheaper prices to the market while also introducing new innovations in the e-book business. Overall, the European Commission's actions against Google and Amazon may forsake short-term consumer welfare with speculative long-term gains by assisting less efficient rivals. I did not find direct links to the antitrust policy being used as a protectionist tool in international trade.

5.2 Limitations of the Study and Suggestions for Future Research

I fully acknowledge that this research paper does not provide a high-degree of empirical evidence related to the discussion of entry-barriers, incentive structures in multi-sided platforms, consumer welfare losses, scale economies or for the pro-competitive justifications for that matter. Rather, this research paper captures the debate around antitrust in high-tech industries in an interesting and understandable

fashion. Additionally, making broader generalisations about the European Commission's antitrust policy based on two antitrust cases might be misleading, because these antitrust decisions can be individual instances.

For future research, I encourage the academic community to find explanations and verifications in the field of finance, economics and business strategy for the meagre performance of European high-tech companies in the global scale compared to the tech ecosystems of United States and China. Furthermore, empirical work in the field of competition economics could verify dynamics of competition related to entry-barriers, network externalities and data analytics as a competitive advantage.

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Exhibit 1: Data for the Amazon's net revenue vs. net income, Table 4.

Net sales revenue of Amazon from 2004 to 2018 (in billion U.S. dollars)

Source

Source	Amazon
Conducted by	Amazon

Survey period	2004 to 2018
Region	Worldwide
Type of survey	*n.a.*
Number of respondents	*n.a.*
Age group	*n.a.*
Special characteristics	*n.a.*
Note	*n.a.*

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Annual net revenue of Amazon 2004-2018
Net sales revenue of Amazon from 2004 to 2018 (in billion U.S. dollars)

	Net revenue in billion U.S. dollars
2004	6.92
2005	8.49
2006	10.71
2007	14.84
2008	19.17
2009	24.51
2010	34.2
2011	48.08
2012	61.09
2013	74.45
2014	88.99
2015	107.01
2016	135.99
2017	177.87
2018	232.89

Annual net income of Amazon.com from 2004 to 2018 (in million U.S. dollars)

Source

Source	Amazon
Conducted by	Amazon
Survey period	2004 to 2018
Region	Worldwide
Type of survey	*n.a.*
Number of respondents	*n.a.*
Age group	*n.a.*
Special characteristics	*n.a.*
Note	*n.a.*

Publication

Published by	Amazon
Publication date	January 2019
Original source	Amazon.com Annual Report 2018, page 36
ID	266288

Amazon: annual net income 2004-2018
Annual net income of Amazon.com from 2004 to 2018 (in million U.S. dollars)

	Net income in millions U.S. dollars
2004	588
2005	359
2006	190
2007	476
2008	645
2009	902
2010	1,152
2011	631
2012	-39
2013	274
2014	-241
2015	596
2016	2,371
2017	3,033
2018	10,073